

New Jersey's Manufacturing Industry Sector

Prepared by:
New Jersey Department of Labor & Workforce Development
Office of Research & Information
Bureau of Labor Market Information
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The goal of this report is to get an “IDEA” of what manufacturing means to New Jersey

Identify the types of industries and establishments that make up the manufacturing sector based on a standard industry classification system

Describe any similarities and differences among its components with regard to such variables as employment, wage, occupation type, education, and demographic characteristics

Examine any present distinctions within the sector and its components that give New Jersey a competitive advantage compared to neighboring states, regions or the nation, or show areas where New Jersey could improve to add to the state’s economy

Analyze the current state of the manufacturing sector and provide an outlook for employment into the future



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New Jersey Manufacturing Highlights

- The manufacturing industry sector contributed nearly \$47.4 billion to the Gross Domestic Product in 2018, or about 8.5 percent of all output
- In 2018, New Jersey employed nearly 43,000 people in chemical manufacturing, the state's largest segment of manufacturing, which ranks fifth among states behind only Texas, California, Illinois, and Ohio
- Average wages paid in many manufacturing industries are well above the statewide private sector average of \$65,300 in 2018
- Manufacturing employers paid nearly \$20 billion in total wages in 2018, or about 8.7 percent of all wages paid



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Source: United States Bureau of Economic Analysis, GDP in Chained 2012 Dollars
Quarterly Census of Employment and Wages, 2018 Annual Averages
Current Employment Statistics, 2018 Annual Average
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

Overview

There were nearly 9,000 establishments in New Jersey that employed nearly 245,600 people in the manufacturing sector in 2018. Employment is scattered throughout the state and found in places ranging from very large pharmaceutical firms to much smaller machine shops. These establishments are generally found in the Northeastern part of the state and also along the Interstate 95 corridor.

The occupational composition within manufacturing industries is continuously changing as more technical skills are required to operate more advanced processes. The expectation of higher skills has resulted in many higher paying jobs, especially among chemical manufacturing firms.

According to the U.S. Census Bureau's 2017 American Community Survey, the profile of the average New Jersey resident worker is generally older than average and male. Nearly 54 percent of the workforce is aged 45 and over. Racially, it is more diverse than average, especially among the Asian population. The workforce is highly educated, as almost 42 percent having attained at least a bachelor's degree.



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Source: Quarterly Census of Employment and Wages, 2018 Annual Averages
Occupational Employment Statistics Survey, May 2019 Estimates
American Community Survey, 2017 Estimates
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

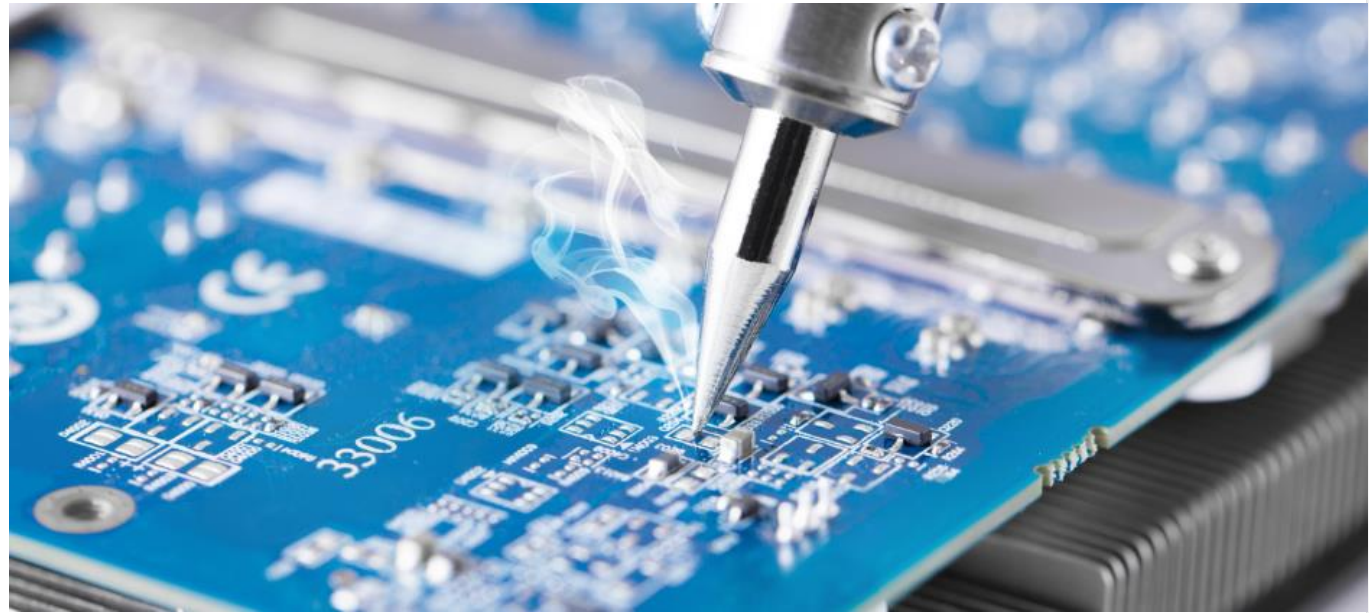
New Jersey hosts a wide range of manufacturing processes from food and printing to petroleum and pharmaceuticals

chemical
glass products
electronics machinery
breweries aerospace textiles petroleum
cabinetry
bakeries pharmaceuticals
industrial machinery printing wineries
plastics defense
cement products
food & beverage
medical devices



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ECONOMIC IMPACT



GDP growth in New Jersey has averaged 1.3 percent per year from 1997 to 2018, and now exceeds half of a trillion dollars

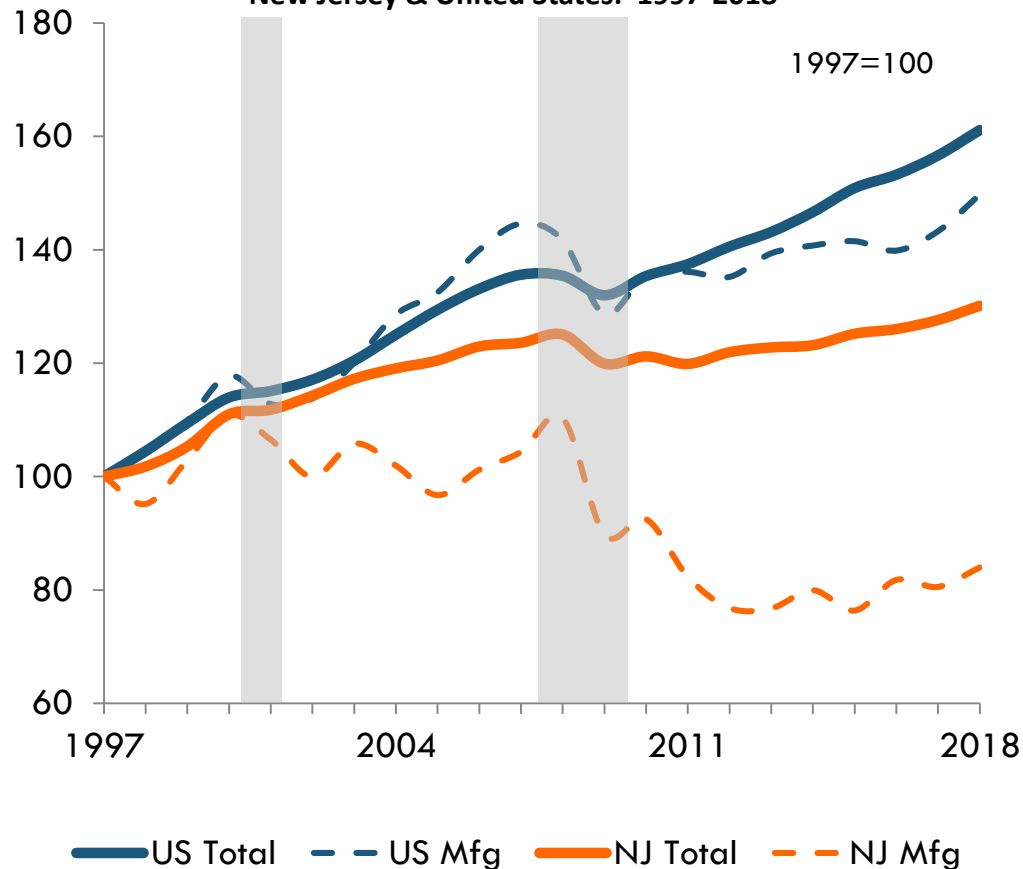
Over the same period, the national GDP has averaged 2.3 percent annual growth

Manufacturing GDP in the United States has grown in line with the overall economy, but in New Jersey, the declining manufacturing GDP estimate has been a detractor

The Great Recession from 2007-2009 deeply affected New Jersey's manufacturing sector as its GDP contribution was slashed by 30%, however, a modest recovery of 1.8 percent annually has occurred over the last five years

Gray area denotes U.S. economic recession as defined by the National Bureau of Economic Research (NBER)

Gross Domestic Product Index (Chained 2012 Dollars)
New Jersey & United States: 1997-2018

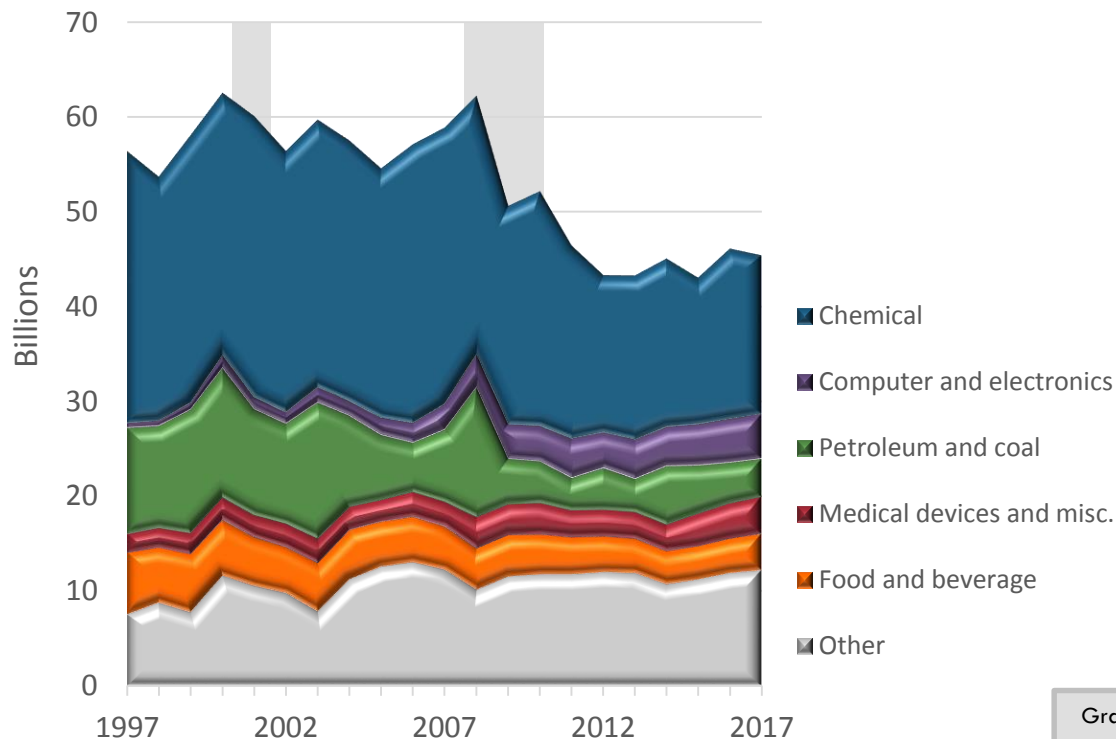


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Source: United States Bureau of Economic Analysis, GDP in Chained 2012 Dollars
Prepared by: New Jersey Department of Labor and Workforce Development
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Output produced from the chemical manufacturing sector dominates GDP output among manufacturing industries

Gross Domestic Product by Manufacturing Segment
New Jersey: 1997-2017



Chemical manufacturing accounted for 51 percent of manufacturing GDP in 1997 (\$29 billion), but only 37 percent in 2017 (\$17 billion)

Computer and electronic products manufacturing has been the best performing industry among this group, increasing its GDP from \$465 million in 1997 to \$4.7 billion in 2017, and now sits as the second highest component in terms of GDP in New Jersey

Medical devices manufacturing has doubled its output since 1997 to nearly \$4 billion in 2017

Gray area denotes U.S. economic recession as defined by the National Bureau of Economic Research (NBER)

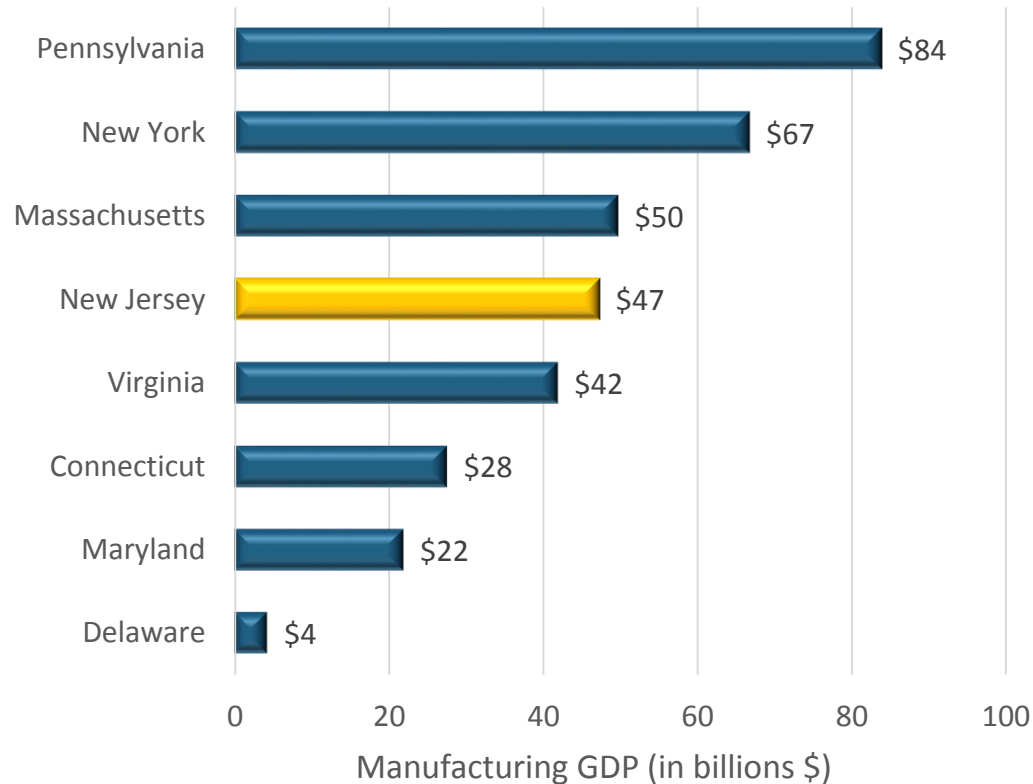


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Source: United States Bureau of Economic Analysis, GDP in Chained 2012 Dollars
Prepared by: New Jersey Department of Labor and Workforce Development
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Nearly 2 of every 10 dollars of output generated by manufacturing in the United States occurs in these eight Northeastern states

Gross Domestic Product Generated from Manufacturing
Selected Northeast states, 2018



New Jersey ranks fourth among these states in the region with GDP from manufacturing exceeding \$47 billion in 2018

Chemical manufacturing is the primary contributor in the tri-state area (NJ, NY & PA) and combined accounts for nearly 15 percent (nearly \$43 billion) of all chemical manufacturing GDP in the US

Data shows that Massachusetts and New Jersey are also leaders in the region in medical device manufacturing



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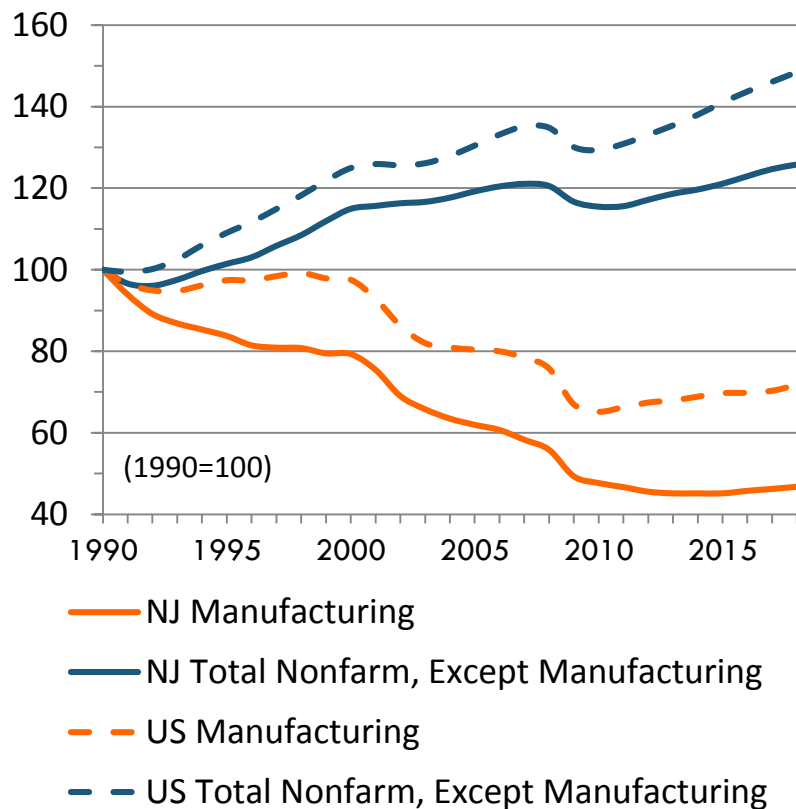
Source: United States Bureau of Economic Analysis, GDP in Chained 2012 Dollars
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

INDUSTRY ANALYSIS



New Jersey has followed a similar employment trend as the nation, but has fared worse over the last 28 years

Employment: Manufacturing vs. All “other” Industries
New Jersey & United States: 1990-2018



Manufacturing has lost 281,600 jobs in New Jersey since 1990, a 2.7 percent annual decline, while the nation has declined at a 1.2 percent annual rate, shedding roughly 5 million jobs

The “other” non-agricultural industries grew by an annual average of 0.8 percent posting a net gain of 801,400 jobs in New Jersey, while the United States added over 44 million jobs, an average gain of 1.4 percent per year

New Jersey has added manufacturing jobs for four consecutive years, reversing a trend of annual declines that spanned decades



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Source: NJLWD, Current Employment Statistics, Annual Averages
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

Manufacturing employment in New Jersey has declined from 14.6 percent of all jobs in 1990 to 6 percent in 2018

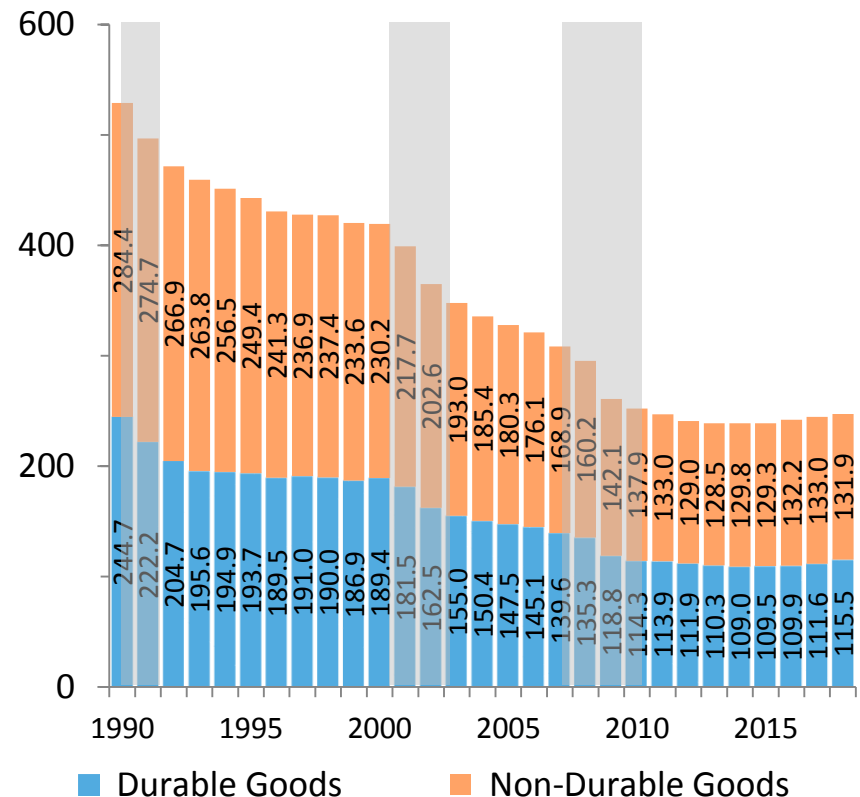
Nationally, manufacturing's share of total employment has declined from 16.2 percent in 1990 to 8.5 percent in 2018

Widespread and consistent losses among industries that manufacture both durable and non-durable goods have resulted in closely distributed annual average losses of 2.6 and 2.7 percent, respectively

During the six worst years for manufacturing employment in New Jersey ('91-'92, '01-'03, '09), more than 163,000 of the 281,600 total jobs losses occurred, an average rate of decline of more than 6 percent per year

Gray area denotes U.S. economic recession as defined by the National Bureau of Economic Research (NBER)

Employment (000s) breakdown
Durable vs. Non-durable Goods
New Jersey: 1990-2018

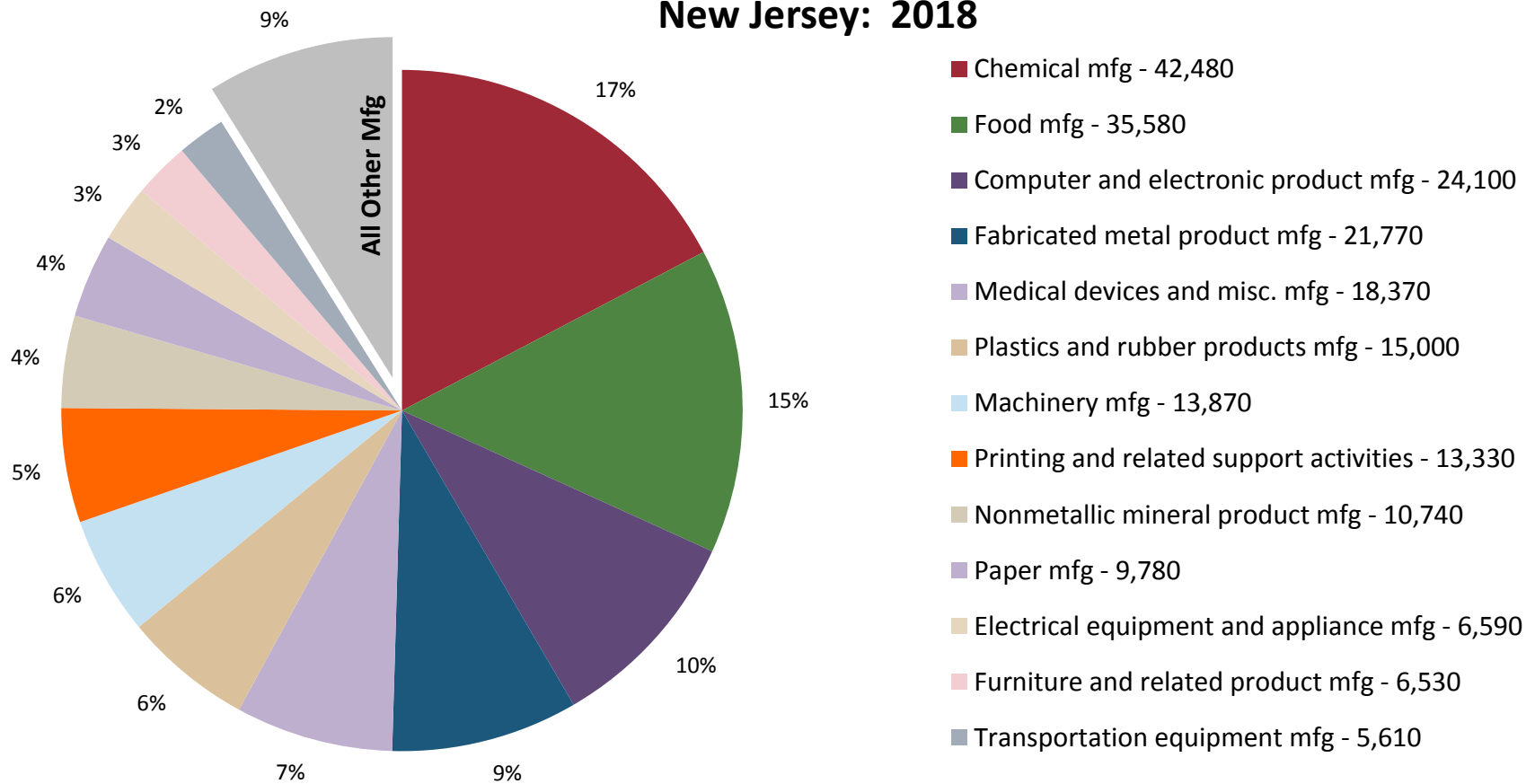


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Source: NJLWD, Current Employment Statistics, Annual Averages
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

The chart below shows the distribution of all manufacturing employment across its many different industries

All Manufacturing Industries as a Percentage of Total Manufacturing in New Jersey: 2018

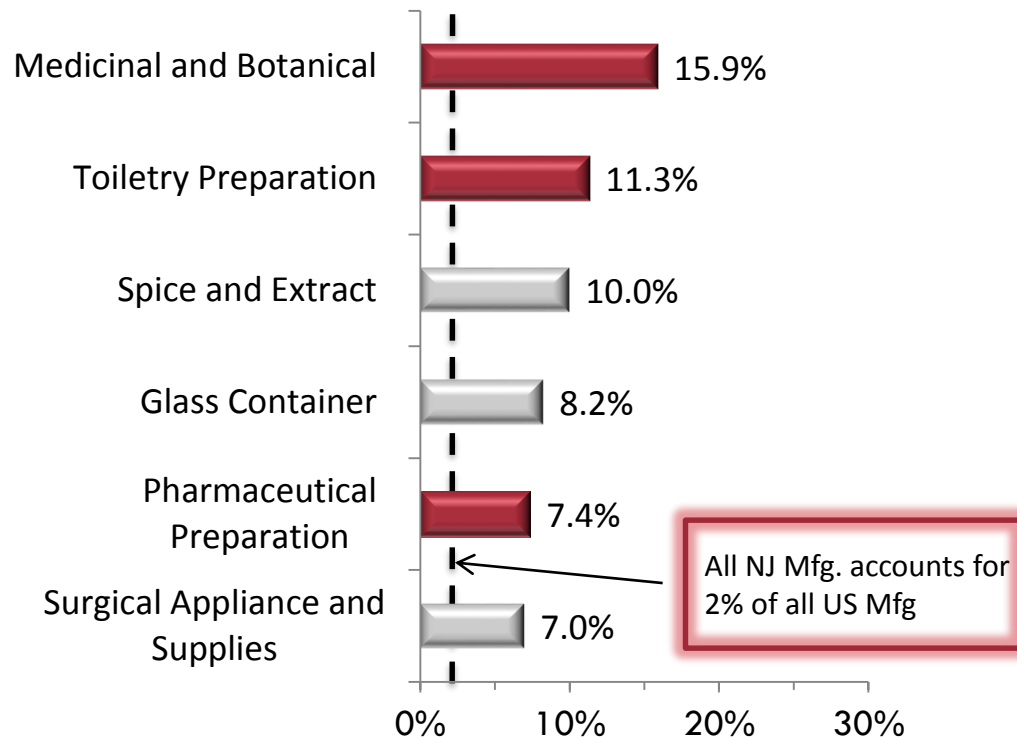


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Source: NJLWD, Quarterly Census of Employment and Wages, 2018 Annual Averages
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

These industries each employ a disproportionately high number of people in New Jersey and are among the manufacturing industries that define the state in 2018

New Jersey Employment as a
Percentage of the nation: 2018



Chemical manufacturing in New Jersey, where three of the six industries on this list are classified, accounts for 5.3 percent of chemical manufacturing employment in the nation

Glass container manufacturing still remains a prevalent industry in the Southern counties of the state

New Jersey is one of the world leaders in surgical appliances and supplies manufacturers

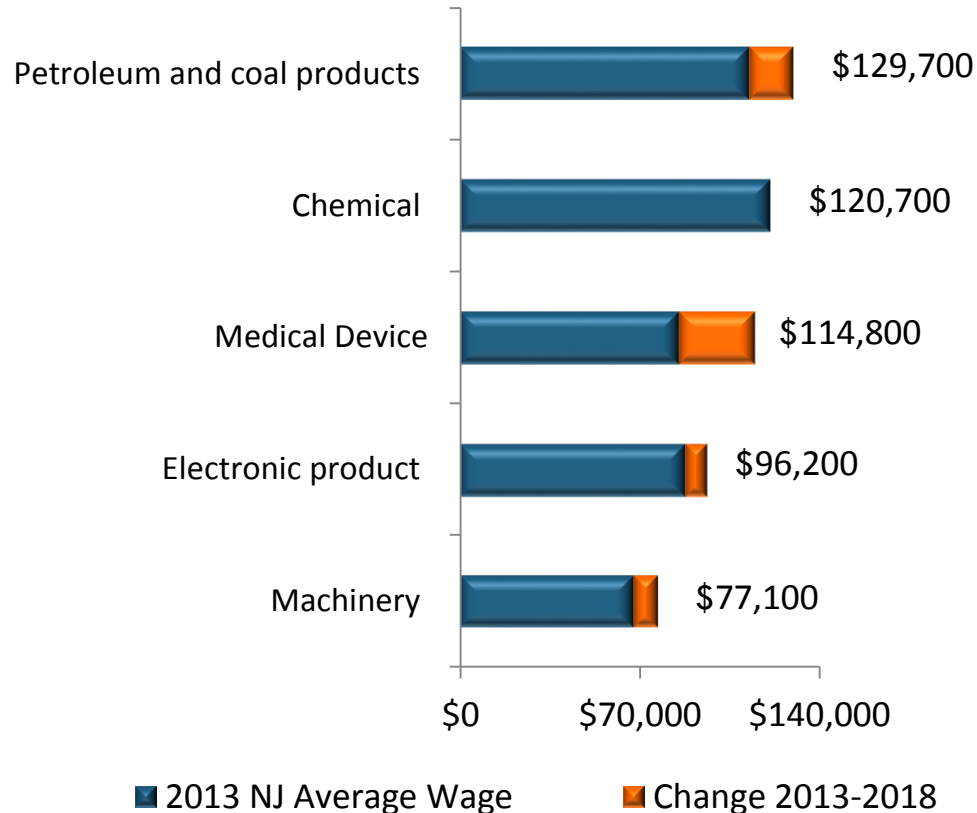


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Source: NJLWD, Quarterly Census of Employment and Wages, 2018 Annual Averages
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Annual average wages in New Jersey in the manufacturing sector have increased by nearly \$2,500 over the past five years

**Annual Average Wage of Major Components of Manufacturing
New Jersey, 2018**



Although relatively small in terms of employment, the petroleum and coal products industry earned more than any other manufacturing industry

The higher annual average wages paid in both chemical and medical device manufacturing are reflective of the greater composition of jobs requiring higher educational levels

Medical device manufacturing saw the largest jump in average annual wage over the last five years, increasing by nearly \$30,000



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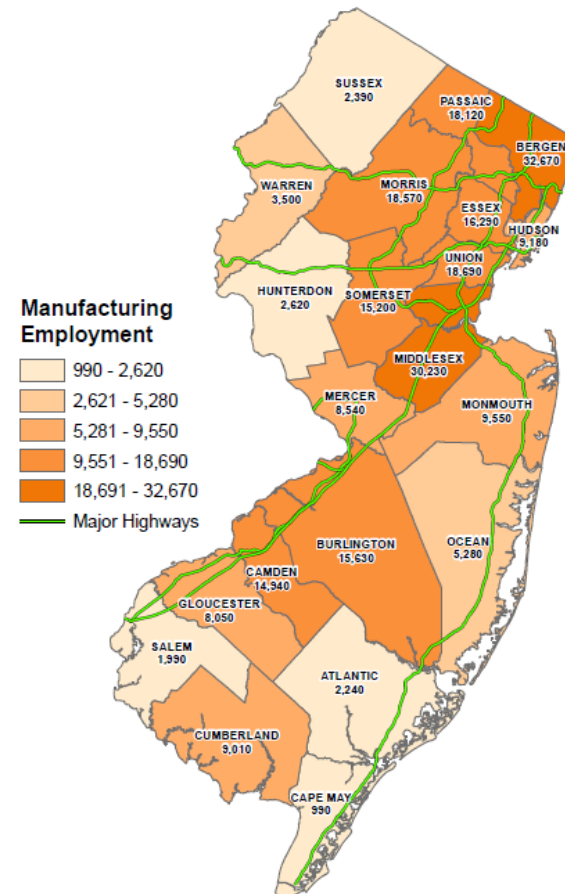
Source: NJLWD, Quarterly Census of Employment and Wages, 2018 Annual Averages
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Employment in manufacturing is highly concentrated in New Jersey's most populous counties and along the Interstate 95 corridor...

New Jersey offers unique business advantages including:

- geographic proximity to roughly 40 percent of the US population, or around 100 million potential consumers
- highly educated and very diverse workforce
- extensive transportation network in place to carry goods by land, air, and sea

Manufacturing Employment
New Jersey, 2018



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Source: NJLWD, Quarterly Census of Employment and Wages, 2018 Annual Averages
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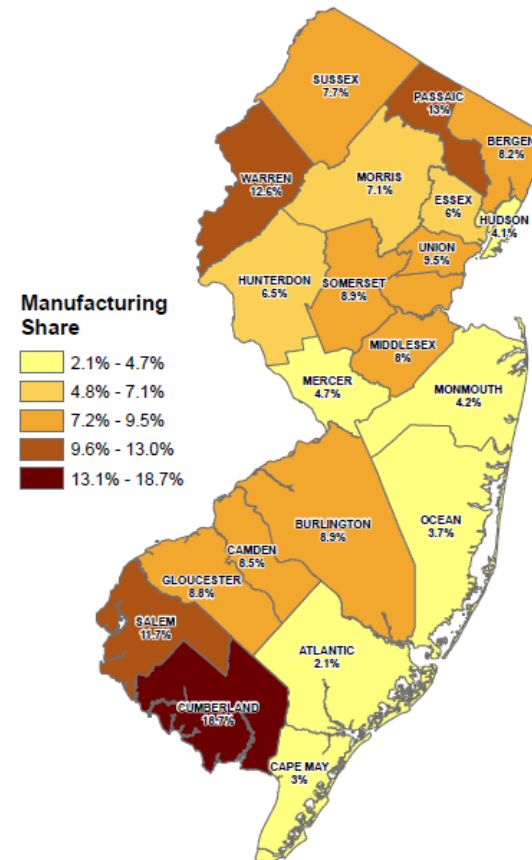
...however, manufacturing in many of New Jersey's more sparsely populated counties make up a larger percentage of total private sector employment

Cumberland County has the largest share of manufacturing of total employment, exceeding 18 percent

Bergen, Morris, Middlesex, and Somerset Counties have a large a diverse mix of manufacturing industries

In the four coastal counties of Monmouth, Ocean, Atlantic, and Cape May, less than 4.2 percent of private sector employment is classified as manufacturing

Manufacturing Employment as a Share of Total Private Employment
New Jersey, 2018



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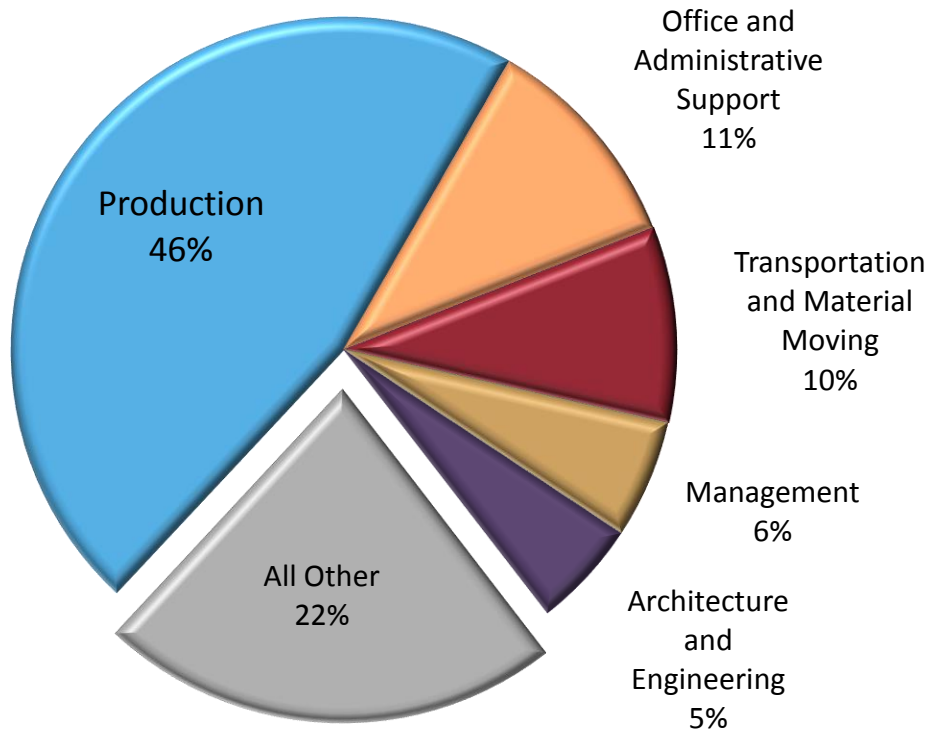
Source: NJLWD, Quarterly Census of Employment and Wages, 2018 Annual Averages
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OCCUPATIONAL ANALYSIS



Nearly 80 percent of all manufacturing jobs are classified into these five groups

Breakdown of Major Occupational Groups within
Manufacturing Industry:
New Jersey, 2018



Nearly half of all manufacturing workers are directly involved with production

Roughly 11 percent of workers are classified in STEM occupations

The “other” 22 percent of manufacturing occupations primarily consists of business, sales and other profession and service occupations



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Source: NJLWD, Occupational Employment Statistics Survey, May 2019
Prepared by: New Jersey Department of Labor and Workforce Development
January, 2020

Ten of the top occupations found in the manufacturing sector are classified as **production** workers

Occupation	2018 Employment	Share of Industry	2018 Average Salary	Minimum Educational Requirements
Total, All Manufacturing Occupations	240,350	100.0%	\$56,990	
Top 20 Occupations	88,030	36.6%	\$50,190	
Packaging and Filling Machine Operators	9,040	3.8%	\$29,830	High school diploma or equivalent
Supervisors of Production Workers	8,560	3.6%	\$70,310	High school diploma or equivalent
Inspectors, Testers, Sorters, Samplers, and Weighers	7,100	3.0%	\$42,770	High school diploma or equivalent
Wholesale Sales Representatives	6,570	2.7%	\$79,290	High school diploma or equivalent
Laborers of Freight and Stock	6,450	2.7%	\$30,280	No formal educational credential
Packers and Packagers, Hand	6,240	2.6%	\$25,160	No formal educational credential
Industrial Machinery Mechanics	4,380	1.8%	\$59,340	High school diploma or equivalent
Chemists	4,030	1.7%	\$96,100	Bachelor's degree
Cutting, Punching, and Press Machine Operators	3,610	1.5%	\$34,850	High school diploma or equivalent
Machinists	3,500	1.5%	\$50,160	High school diploma or equivalent
Mixing and Blending Machine Operators	3,500	1.5%	\$41,700	High school diploma or equivalent
Chemical Equipment Operators	3,190	1.3%	\$49,060	High school diploma or equivalent
Industrial Engineers	3,170	1.3%	\$98,050	Bachelor's degree
Industrial Truck and Tractor Operators	3,130	1.3%	\$36,490	No formal educational credential
Food Batchmakers	2,920	1.2%	\$34,780	High school diploma or equivalent
Welders, Cutters, Solderers, and Brazers	2,900	1.2%	\$47,050	High school diploma or equivalent
Bookkeeping, Accounting, and Auditing Clerks	2,880	1.2%	\$46,860	Some college, no degree
Computer-Controlled Machine Tool Operators	2,370	1.0%	\$45,760	High school diploma or equivalent
Heavy and Tractor-Trailer Truck Drivers	2,320	1.0%	\$49,080	Postsecondary nondegree award
Maintenance and Repair Workers, General	2,170	0.9%	\$45,540	High school diploma or equivalent



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Source: NJLWD, Occupational Employment Statistics Survey, May 2019
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Many of the occupations found in the manufacturing sector have moderate to high educational requirements for entry

Total Number of Employment in Manufacturing by Minimum Education Requirement New Jersey, 2018

Minimum Education Requirement	2018 Employment	% of Total
Total, All Manufacturing	244,660	100.0%
Total High Requirements	47,960	19.6%
Doctoral or professional degree	1,440	0.6%
Master's degree	250	0.1%
Bachelor's degree	46,270	18.9%
Total Moderate Requirements	12,330	5.0%
Associate's degree	4,950	2.0%
Postsecondary nondegree award	3,880	1.6%
Some college, no degree	3,500	1.4%
Total Low Requirements	180,380	73.7%
High school diploma or equivalent	142,500	58.2%
No formal educational credential	37,880	15.5%

Nearly one-third of the employment that requires at least a Bachelor's degree are classified as scientists and engineers

Although the majority of employment in manufacturing may not require postsecondary education for entry, the tradesmen and production workers that comprise this group often have many years of experience, and may have completed an apprenticeship or extensive on-the-job training program



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Source: NJLWD, Occupational Employment Statistics Survey, May 2019
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SUBSECTOR DETAILS



Food Manufacturing

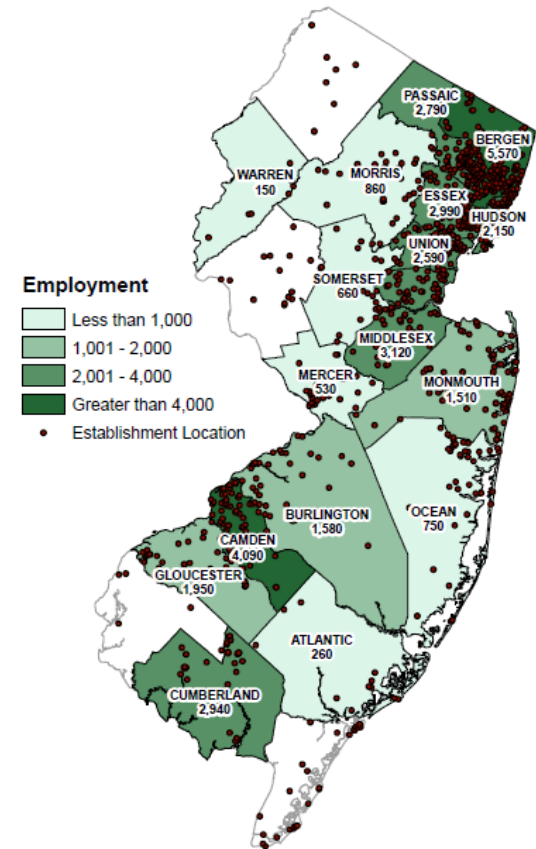
	Establishments	Employment	Employment Per Establishment
2013	1,040	30,490	29
2018	1,218	35,579	29
Change	178	+5,089	-

The food manufacturing industry has added 5,000 jobs over the past five years, and has large concentrations in Bergen and Camden Counties

Key Occupations include:

- Food Batchmakers
- Bakers
- Packaging and Filling Machine Operators
- Industrial Machinery Mechanics
- Forklift Operators
- Inspectors, Testers, Sorters and Samplers
- Food Scientists and Technologists
- Whole Sales Representatives

Food Manufacturing Employment and Establishment Locations New Jersey, 2018



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Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
Prepared by: New Jersey Department of Labor and Workforce Development
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Chemical Manufacturing

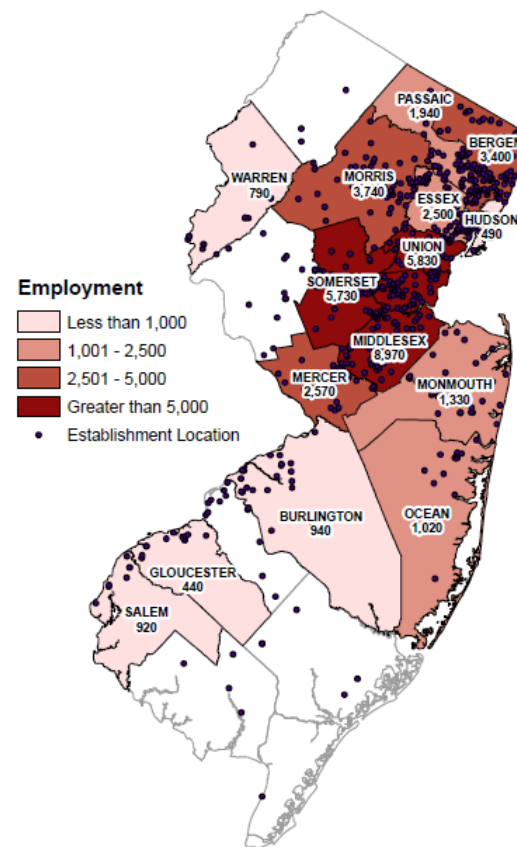
	Establishments	Employment	Employment Per Establishment
2013	817	48,650	60
2018	854	42,479	50
Change	37	-6,171	-10

The chemical manufacturing industry has strong concentrations along the Route 1 corridor, particularly in Middlesex, Somerset, and Union Counties

Key Occupations include:

- Chemists
- Chemical Equipment Operators
- Mixing and Blending Machine Operators
- Chemical Technicians
- Industrial Machinery Mechanics
- Industrial Engineers
- Compliance Officers
- Whole Sales Representatives

*Chemical Manufacturing Employment and Establishment Locations
New Jersey, 2018*



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Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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Computer and Electronic Product Manufacturing

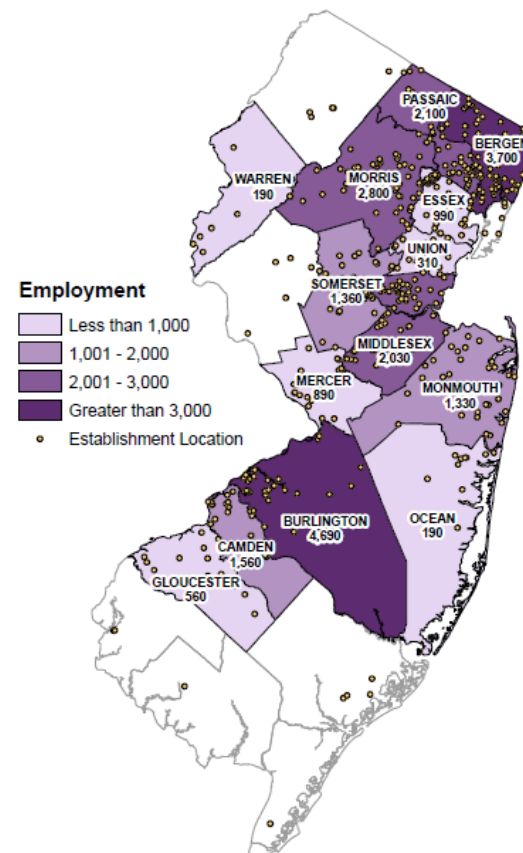
	Establishments	Employment	Employment Per Establishment
2013	682	23,792	35
2018	674	24,097	36
Change	-8	+305	+1

The computer and electronic product manufacturing industry has maintained steady employment, and is prevalent in Burlington and Bergen Counties

Key Occupations include:

- Electrical and Electronic Assemblers
- Electrical Engineers
- Software Developers
- Industrial Machinery Mechanics
- Mechanical Engineers
- Buyers and Purchasing Agents
- Inspectors, Testers, Sorters and Samplers
- Whole Sales Representatives

*Computer & Electronic Product Manufacturing
Employment and Establishment Locations
New Jersey, 2018*



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Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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Fabricated Metal Product Manufacturing

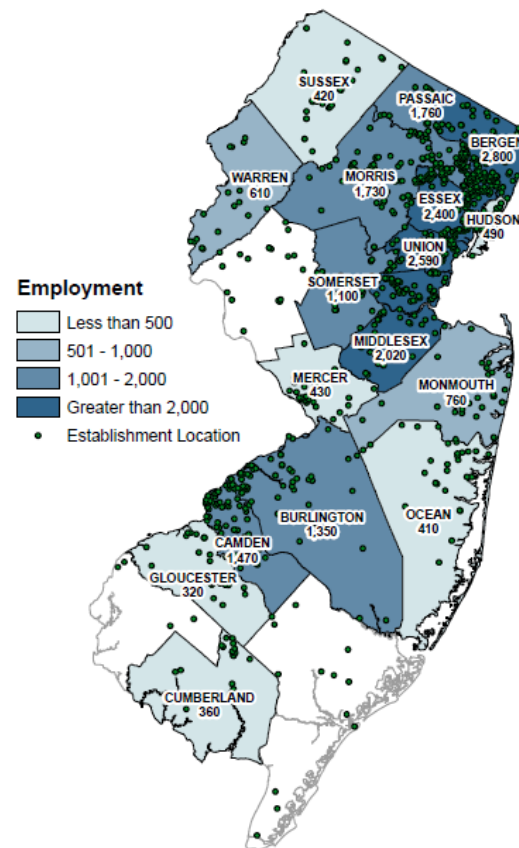
	Establishments	Employment	Employment Per Establishment
2013	1,190	21,772	18
2018	1,135	21,769	19
Change	-55	-3	+1

The fabricated metal product manufacturing industry has maintain employment levels, and has concentrations nearest Philadelphia and New York City

Key Occupations include:

- Machinists
- Welders, Cutters, Solderers, and Brazers
- Assemblers and Fabricators
- Industrial Machinery Mechanics
- Forklift Operators
- Inspectors, Testers, Sorters and Samplers
- Cutting, Punching, and Press Machine Operators
- Whole Sales Representatives

*Fabricated Metal Manufacturing Employment and Establishment Locations
New Jersey, 2018*



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Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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Medical Device Manufacturing

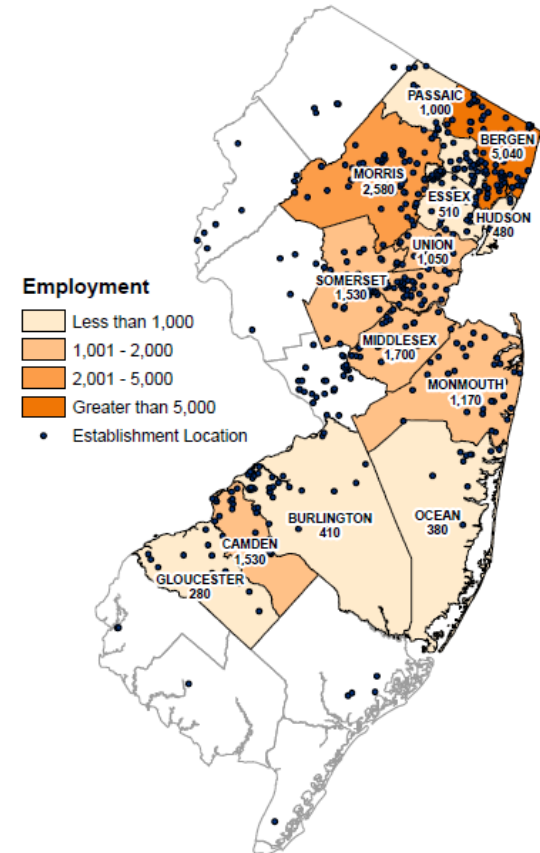
	Establishments	Employment	Employment Per Establishment
2013	394	11,645	30
2018	368	12,177	33
Change	-26	+532	+3

The medical device manufacturing industry gained 500 jobs from 2013 to 2018, and nearly one-third of its employment is found in Bergen County

Key Occupations include:

- Medical Appliance Technicians
- Molding and Casting Machine Operators
- Inspectors, Testers, Sorters and Samplers
- Industrial Engineers
- Dental Laboratory Technicians
- Computer-Controlled (CNC) Machine Tool Operators
- Production, Planning, and Expediting Clerks
- Whole Sales Representatives

*Medical Device Manufacturing Employment and Establishment Locations
New Jersey, 2018*



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Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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DEMOGRAPHIC PROFILE



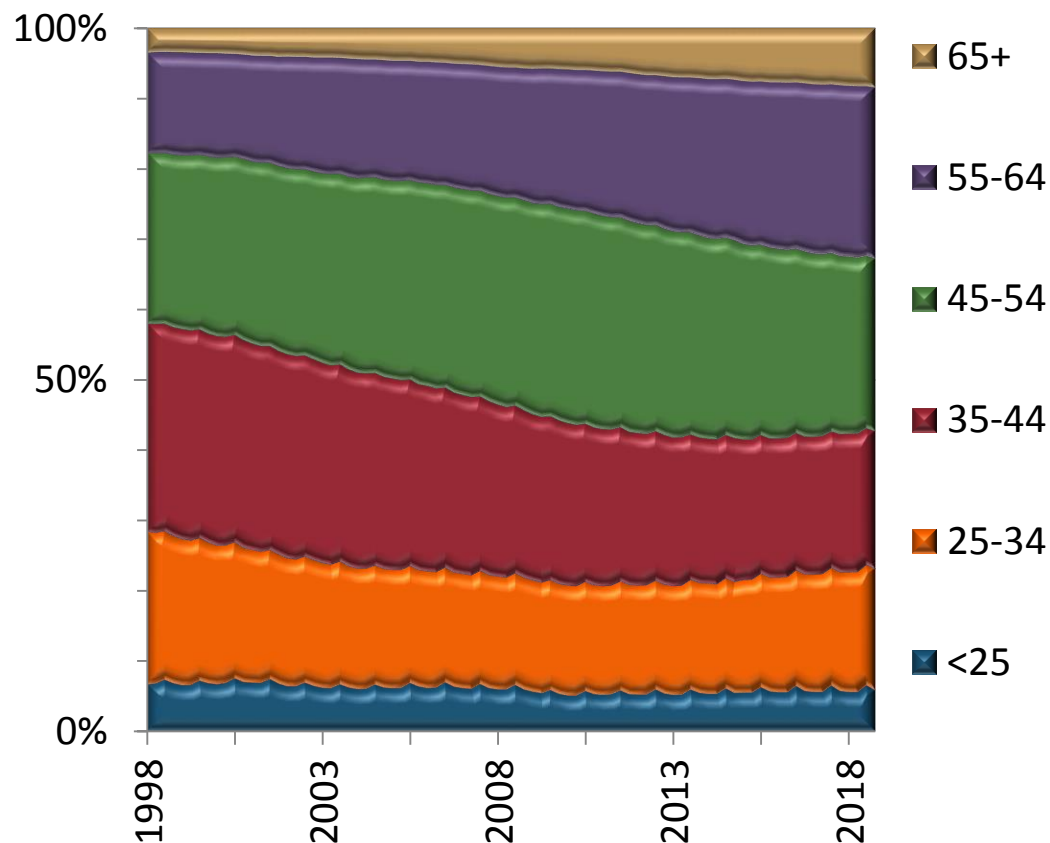
Data shows a steady and gradual change toward an older workforce in nearly every age cohort

The workforce aged 65 and older has nearly tripled its share of total employment from 3 percent to almost 9 percent from 1998 to 2018

Over the past 20 years, the fastest growing age cohort has been 55-64 years old while the group aged 35-44 has declined the most

The share of the manufacturing workforce under the age of 35 has decreased over the last 20 years from 28 percent to 23 percent

Breakdown of Workforce by Age
New Jersey: 1998-2018

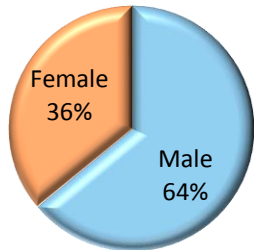


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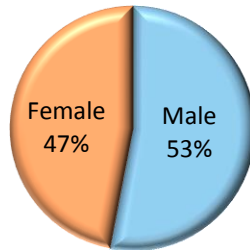
Source: United States Census Bureau, Quarterly Workforce Indicators
Prepared by: New Jersey Department of Labor and Workforce Development
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Gender, racial, and ethnic profile of New Jersey residents working in manufacturing industries

Manufacturing



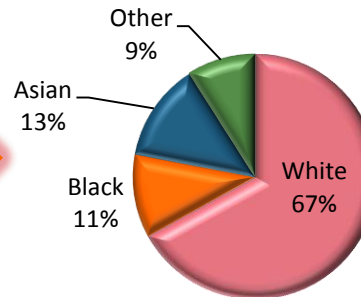
All Industries



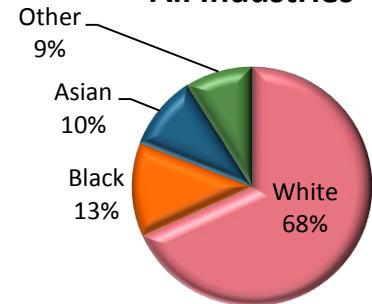
The manufacturing workforce is predominantly male

The Asian population makes up a larger portion of the manufacturing workforce than the overall economy

Manufacturing

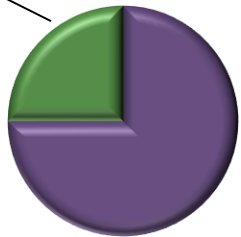


All Industries



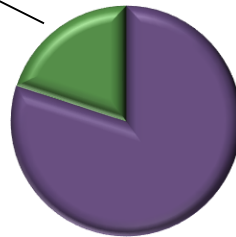
The Hispanic population is slightly less among manufacturing industries

Hispanic 25%



Manufacturing

Hispanic 20%



All Industries

Non-Hispanic 80%



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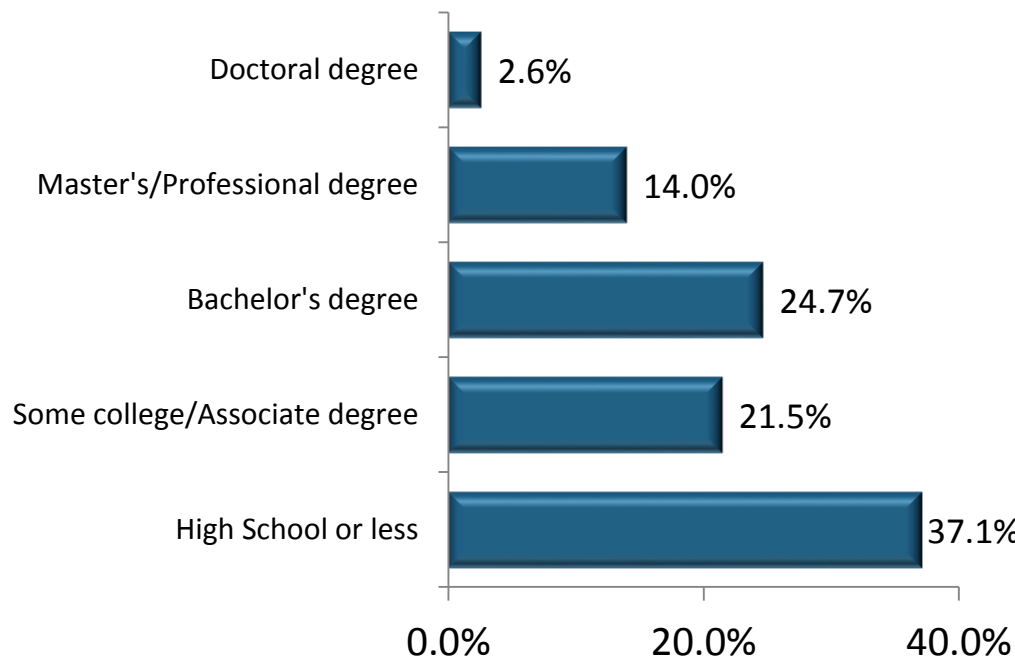
Source: United States Census Bureau, 2017 American Community Survey
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Self-reported educational attainment and average wage of NJ residents in the manufacturing workforce

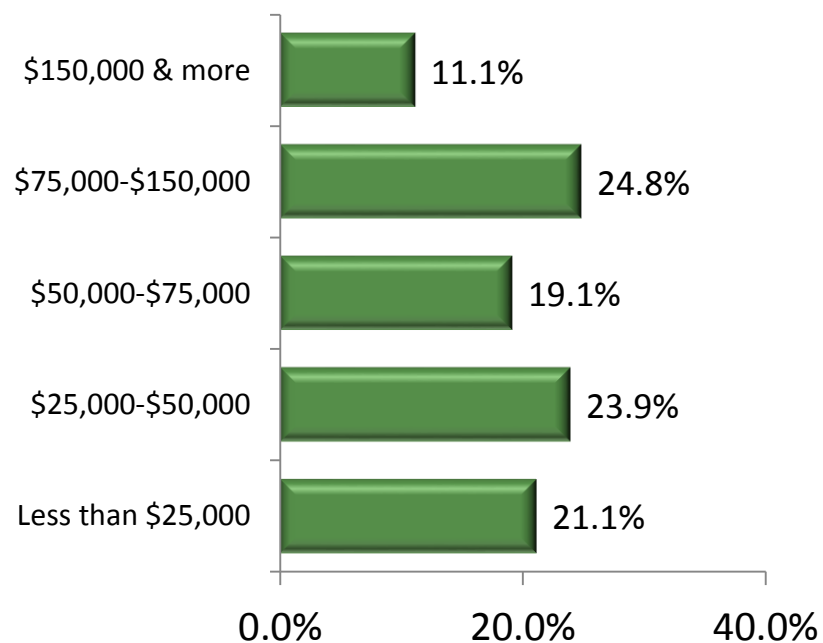
More than 40 percent of the workforce reported that they have earned at least a bachelor's degree, and...

...nearly 55 percent of the workforce claimed to have earned wages above \$50,000

Education Level



Average Wage



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Source: United States Census Bureau, 2017 American Community Survey
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NEW JERSEY MANUFACTURING INDUSTRY CLUSTER

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http://lwd.dol.state.nj.us/labor/lpa/LMI_index.html

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